

ABSTRACT OF THE INVENTION

Provided is a bio-sensor system which utilizes radio frequency identification technology and which includes a remote transponder in wireless communication with an implantable passively-powered on-chip transponder. The bio-sensor system is specifically adapted to provide a substantially stable and precise sensor reference voltage to a sensor assembly that is included with the on-chip transponder. The remote transponder is also configured to remotely receive data representative of a physiological parameter of the patient as well as identification data and may enable readout of one or more of the physiological parameters that are measured, processed and transmitted by the on-chip transponder upon request by the remote transponder. The precision and stability of the sensor reference voltage is enhanced by the specific circuit architecture of the glucose sensor to allow for relatively accurate measurement of the physiological parameter such as measurement of glucose concentration by a glucose sensor without the use of a microprocessor.